
Space Weather Forecast

Issued on Friday, 19 January 2024 at 13:00 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of isolated Moderate-class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low over the last 24 hours, with only minor Common-class flares observed. There are currently ten sunspot regions on the disc. A region near the northeast limb has developed more intermediate spots, likely due to viewing angle improving. Another one of the larger regions in the southeast has been stable, but a new region has developed just to the southwest of this region. The trailing spots of a region in the southwest have now largely faded. All other spots are small and stable or decreasing.

No Earth directed Coronal Mass Ejections (CMEs) were observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds have been mostly at slightly elevated levels. This is either due to a weak connection to a coronal hole fast wind or weak CME influence. The wind speed has varied between 380-450 km/s. The Interplanetary Magnetic Field has been weak to moderate, with the north-south component varying weakly, but with more of a southward directed component. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low activity is expected to continue, with a chance of isolated Moderate class flares.

Solar Wind / Geomagnetic Activity: There are no Earth directed CMEs expected. The current slightly elevated solar wind speeds are expected to decline through Day 1 into Day 2 (19-20 Jan), before a new coronal hole fast wind is expected to arrive late Day 2. Winds are likely to be 450-500 km/s from this feature, this persisting through Day 3 (21 Jan), then perhaps declining through Day 4 (22 Jan).

Overall geomagnetic activity is expected to be Quiet to Unsettled (Kp 1-3), perhaps with isolated Active (Kp4) intervals under fast wind influence mainly on Day 2.

Energetic Particles / Solar Radiation: Solar radiation levels are currently at background and expected to remain so through the period. There remains just a slight chance of seeing a rise towards the S1/Minor Storm level, should there be a larger flare from a favourable location.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	25	25	25	25
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)